

Hi Haroula and Ravi

Thanks for your time yesterday afternoon. Please see below my notes from the discussion. Would you mind reading through to make sure we are on the right track. I'll work with the team to try and get you draft response next week.

Regards

Hugh

Item	No.	Issue	Action	Responsible	Status
RFI	E2	The proposed culvert to be relocated on the eastern side boundary does not appear to have sufficient gradient.	Minimum grade understood to be 0.5% the channel 0.85%. Council is looking for 1%. Concern is related sediment entering the channel. Council DCP and guidelines require 1%. Sydney water asset, therefore SW determination.		
RFI	E3	The council's Flood information letter and flood map indicates that the site in affected by 1%AEP flooding events. As the land profile slopes from south-west towards the Northeastern direction, the flood level during 1%AEP ranges from 12.4mAHD at the Northern end/corner to 15.5mAHD towards the South Western end. The habitable area floor level must be 500mm above the associated 1%AEP flood level. The overlay of the flood map on the architectural plan of ground floor indicates the 1%AEPflood level at a. The open area on the southside and the accesses door of DG01 is over 15.5mAHD b. The vehicular crossing opposite the proposed roundabout on Rawson Street is approx. 14.6mAHD. c. The Main access gate to the lobby (between CG.06and CG.07) at aprpox13.8mAHD, d. The Access gate to the lobby between CGT.01 and AG.01 at approx. 12.8mAHD. e. In addition, the flood levels associated for the commercial units AG.02, AG01 ~ DG.01 increases accordingly from the north towards the south. Each of the access gate/door must be protected from the flood. The floor level must be at least 500mm above the associated 1%AEP flood level. The architectural floor plan does not demonstrate how these accesses are protected from the flood.	Images to be updated to show PMF level. Protection to be demonstrated		

Item	No.	Issue	Action	Responsible	Status
RFI	E4	In regards to the vehicular crossing and access driveway, the driveway shall incorporate a crest across the driveway with the crest level 500mm higher than the associated flood level during 1%AEP storm event.	As above		
RFI	E5	The submitted flood study report is not satisfactory in regard to h the risk assessment and risk management measures.	Please provide additional hazard mapping		
RFI	E6	The proposed free board of 150mm is against Council advised 500mm and not supported.	As with E3		
RFI	E7	The blockage of 50% must apply. The study does not account for the blockage.	Run 50% blockage at inlet above the site. Also run 50% outlet blockage		
RFI	E8	The study report does not elaborate the flooding impact of the proposed development to the surrounding neighbourhood.	Impact map has been included in the report. Please refer to figure 5. We can add hazard map to the report		
RFI	E9	The study must analyse the scenario for 5%AEP and PMF events as well for better understanding of the site situation and clarity.	Understand sensitivity, address in the risk assessment.		
RFI	E12	The drainage system of basements particularly the basement level 2 needs to be appropriately designed noting that the water table within the site is just around the surface within (the few meter from the surface approx. 2.8m below the ground level). Detailed calculation for subsoil infiltration rate must be provided and the pump-out system provided must have sufficient i) holding capacity to allow for pump failure up to 12 hours and ii) sufficient pumping rate.	Basement will be tanked		
RFI	E13	The On-site detention(OSD) tank must have overflow chamber incorporated to maintain the top water level. In addition, appropriate measures shall be incorporated to provide emergency overflow escape route and manage emergency overflow.	PK to amend design		
RFI	E15	Sufficient grated opening shall be provided (around each corner of the OSD tank) for improved cross-ventilation.	Challenges with the location of the tank. Needed to provide ventilation. Openings to be located to best of ability in (look at lids) trafficable		

Item	No.	Issue	Action	Responsible	Status
			area. Sketch to be provided to Ravi for review and comment		
RFI	E16	The stormwater plan of ground level lacks labelling and clarity. There appear to be few unlabelled components. The layout of the pipelines shall be shown clearly with darker lines on the ground level plan. The layout shall show how the runoff from each of the sub-catchments are directed into the OSD/WSUD system.	PK to update with additional information.		
RFI	E17	The OSD system must be designed based on the Tail-water level at the point of discharge and the OSD storage adjusted accordingly. The tailwater level is either the flood level (or the top of kerb level if the site is not affected by the flood). Since the pit, if proposed to be discharged into a kerb inlet pit. It is noted that the outflow from the OSD tank is proposed to be discharged on to a pit at the proposed to be located on the northern side. The flood level at the location is noted to be approx. 12.6mAHD. Hence, the OSD design shall take account of this flood level. The proposed orifice and the OSD tank will be lower than the flood level and the floodwater is likely to backflow into the OSD tank.	Design to be amended. Water level is 12.5 rather than 12.3		

Item	No.	Issue	Action	Responsible	Status
RFI	E19	In accordance with the Section 2.5 and 2.7 Cumberland DCP 2021 Part G4, the development must incorporate the water quality improvement/ Water Sensitive Urban Design (WSUD) measures to comply with the controls outlined therein and achieve the pollutant removal targets. The WSUD measure must accompany a MUSIC model. Arrangement must be made to collect and separate the first flush, i.e., the initial flow that contains high concentration of pollutants such as the initial flow equivalent to approx. 1 in 3 month's flow from each catchment, to be collected and treated fully without being escaped untreated. In this regard, a device known as high-flow bypass chamber (also termed as high-flow diversion chamber) shall be employed to separate the initial flow (first flush) which is allowed to pass through a low level flow outlet into the water quality treatment / filtration system, and the flow exceeding that rate to be discharged through the high level overflow or outlet pipe into the OSD system or rainwater tank if a rainwater tank is provided. However, the overflow from the rainwater tank should be directed into the HED control chamber. The outflow from the filtration system that cannot be directed into HED control chamber due to the hydraulic grade line shall be directed into the overflow chamber and the outflow and the orifice diameter shall be downsized accordingly to account for the outflow from the filtration system that bypass the OSD system. The capture of 1 in 3 month's flow and redirection into the filtration system is illustrated in the diagram below.	Please refer to design for first flood chambers. MUSIC model was submitted. PK and RT to discuss off line. Ravi diagrams to be forwarded to HT		
RFI	E20	The pollution removal targets must be demonstrated with the supporting documents including the MUSIC model with the input parameters and output results. Further, the removal efficiency parameters input in the model must be consistent with the manufacturer's pollutant removal efficiency.	MUSIC results to be forwarded to RT		

Item	No.	Issue	Action	Responsible	Status
RFI	E21	The music model must be consistent and reflect the arrangement of each component of the treatment system shown on the stormwater plan. further clarity needed to be shown on the plan and that with regards to the labelling of the MUSIC model components.	RT to review and advise.		

New design to be forwarded to RT for

Hugh Thornton

Project Manager

P 02 9687 0099

M 0410 342 264

E hugh@raad.com.au